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NOTE

Use of an Introduced Host, Scotch Pine, by a Native Planthopper, *Thionia bullata* (Homoptera: Fulgoroidea: Issidae)

Thionia Stål is a New World genus of issid planthoppers that contains 72 species. Of the eight species occurring in North America north of Mexico, biological information other than an occasional reference to host plants is available only for three species. *Thionia elliptica* (Germar) is a univoltine oak feeder that develops on branches of scrub oak (*Quercus ilicifolia* Wang.) in pitch pine-scrub oak barrens in Pennsylvania; it has also been collected from blackjack oak (*Q. marilandica* Muenchh.) (Wheeler and Wilson 1987. Journal of the New York Entomological Society 95:440–451). In the southern states, *T. bullata* (Say) develops on pines such as *Pinus echinata* Mill., *P. taeda* L., and *P. virginiana* Mill. The polyphagous *T. simplex* (Germar) has been observed on 12 species of herbaceous and woody plants in the eastern United States (Wheeler and Wilson 1988. Journal of the New York Entomological Society 96:266–273). All five nymphal instars have been described for *T. elliptica* and *T. simplex,* and third through fifth instars for *T. bullata* (Wheeler and Wilson 1987, 1988).

Discovery of *T. bullata* on pines represented one of the relatively few records of an issid from a coniferous host (Wilson et al. 1994. *In* Denno and Perfect, eds., Chapman and Hall, New York, pp. 7–113). Here I report use of the introduced Scotch pine (*P. sylvestris* L.) as an additional host and give notes on its seasonal history.

Observations of *T. bullata* were made on a mature Scotch pine on the Furman University campus, Greenville, South Carolina. Nymphs were abundant on 15 July 1988; 10 third, 23 fourth, and 4 fifth instars were collected. At about this same time in 1995 (14 July) only fifth instars were present. Adults and a few fifth instars were present on 11 Aug. 1989. Two first instars were beaten from branches of the same tree on 11 May 1995, suggesting that overwintered eggs had just begun to hatch. This issid, like *T. elliptica* (Wheeler and Wilson 1987), appears to be univoltine, with nymphal development requiring about 10 weeks.

Scotch pine has recruited a diverse insect fauna in the New World, one that includes European species now naturalized in North America (Drooz, ed. 1985. U.S. Department of Agriculture, Forest Service. Miscellaneous Publication 1426, Washington, D.C.; Wheeler and Henry 1992. Thomas Say Foundation Monograph 25, Entomological Society of America, Lanham, Md.), as well as native herbivores that have adapted to this introduced tree species (e.g. Knight 1941. Bulletin of the Illinois Natural History Survey 22: 1–234).

Thionia bullata is an apparent pine specialist that has colonized Scotch pine at Greenville, S.C., its population persisting since at least 1988. This issid is another example of an indigenous herbivore known to have expanded its host range to include an adventive species (see Strong et al. 1984. Harvard University Press, Cambridge, Mass.). Such a host switch can involve "geographic proximity, physical and temporal suitability, and taxonomic and chemical similarity to native hosts" (Berenbaum and Zangerl 1991. Oikos 62: 153–159). Host switching may often be mediated by plant secondary chemistry (e.g. Miller and Wenzel. 1995. Annual Review of Entomology 40: 389–415). In some cases the primary barriers to host range expansion seem to be behavioral rather than physiological (e.g. Karowe 1990. Evolution 44: 1637–1647).

Voucher specimens have been depos-

ited in the collection of S. W. Wilson, Central Missouri State University, Warrensburg.

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NOTE

Validation of *Neosarcophaga* Shewell *nomen nudum* (Diptera: Sarcophagidae)

When the genus name *Neosarcophaga* was initially proposed by me for nine included species in the key to genera for the family Sarcophagidae in the *Manual of Nearctic Diptera,* Volume 2 (Shewell 1987, Agriculture Canada Monograph No. 28: 1168), it was a *nomen nudum,* being without type species citation. Dr. Thomas Pape of the Swedish Museum of Natural History, Stockholm, has recently written to me in connection with his pending publication of a catalog of world Sarcophagidae, stating that he would like to have *Neosarcophaga* validated by publication of a type species designation. I therefore now designate *Sarcophaga occidentalis* Aldrich (1916, Entomological Society of America, Thomas Say Foundation 1: 198) as type species of *Neosarcophaga* Shewell. It and the following species, namely *Sarcophaga canadensis* Hall (1929, Entomological News 40: 322), *Sarcophaga elongata* Aldrich (1916, *ibid.,* p. 198), *Sarcophaga gracilis* Aldrich (1916, *ibid.,* p. 202), *Sarcophaga juliaetta* Aldrich (1916, *ibid.,* p. 200), *Sarcophaga lilliputiana* Dodge (1967, Pacific Insects 9: 684), *Sarcophaga perissa* Reinhard (1952, Canadian Entomologist 84: 145), *Sarcophaga perspicax* Aldrich (1916, *ibid.,* p. 201), *Sarcophaga statuta* Reinhard (1952, *ibid.,* p. 144), *Sarcophaga thatuna* Aldrich (1916, *ibid.,* p. 196), and *Sarcophaga vancouverensis* Parker (1918, Canadian Entomologist 50: 122) should all be included as **new combinations** in *Neosarcophaga* Shewell.

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